

## ABSTRACT

A portable biometric authentication system having a single technology for measuring multiple, varied biological traits to provide individual authentication based on a combination of biological traits. At least one of these biometric traits is a live physiological trait, such as a heartbeat waveform, that is substantially—but not necessarily completely—unique to the population of individuals. Preferably, at least one of the identifying aspects of the biological traits is derived from a measurement taken by reflecting light off of the subdermal layers of skin tissue.